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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,067	11/25/2003	Chikaroku Yamashita		4201

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EXAMINER

MENON, KRISHNAN S

ART UNIT PAPER NUMBER

1723

DATE MAILED: 06/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/720,067

Applicant(s)

YAMASHITA ET AL.

Examiner

Krishnan S. Menon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 June 2006.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-12 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 8-12 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 8-12 are pending as amended 6/19/06

Specification

The disclosure is objected to because of the following informalities: the specification refers to claim numbers at several places. The original claims were cancelled. The subject matter in the allowed claims, if/when the application is allowed, may not be in agreement with the claim numbers referred to, which would render the specification non-compliant to 35 USC 112, first paragraph.

Appropriate correction is required.

Claim Objections

Claims 8-12 objected to because of the following informalities: the drainpipe is being claimed as connected to the gas supply device, which is believed to be in error. Specification describes gas supply device as connected to a "deflate pipe" (6). Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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Claims 8-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 recites a tilt angle for the microfilter device relative to a surface of 'said filter device', which is unclear, and is indefinite because the device has many surfaces. For examination, the surfaces of the microfilters are assumed as being tilted to the wastewater inlet side of the solid-liquid separator.

Claim 12 recites the microfilter surface as facing a direction opposite to a surface of said filter device. This is indefinite because 'a surface of said filter device' is not clearly defined. The filter device has many surfaces. For examination, the microfilter surface is assumed as facing an opposite direction with respect to a second microfiltration surface next to or adjacent to it.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 8-10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida et al (US 5,451,317).

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Ishida teaches a submerged filter in a treatment tank with microporous membranes (which is implied for the process of wastewater treatment) attached to plurality of filter supports (filter device), raw fluid inlet, filtrate removal, bubbling air, capable of continuous process, sediment removal from the bottom, all as claimed – see figures, particularly, figure 1, abstract, and column 2 lines 16-60. Regarding the tilt angle relative to a surface of the device, the microfilter surfaces of the device are shown as being vertical in the reference. The applicant's disclosure and figures describe convectional currents caused by air bubbles protecting the membrane surface from deposits on the membrane. Such convectional currents is taught by the reference – see figure 4, flow marked B. The bubbles also move along the surface of the membrane. Since no other criticality is given for the "tilt", it is considered as only a minor change in shape, and is not given any patentable weight. In *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984), the Federal Circuit held that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. In re *Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966) (The court held that the configuration of the claimed disposable plastic nursing container was a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration of the claimed container was significant.).

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It may also be noted that providing lamella plates at an angle is known for improving floatation in the art of floatation process – see figure 4, US 5,863,441 to Krofta, or figure 2 and 4 of US 6,890,431 to Eades, et al.

The reference teaches double-sided membranes, so each membrane has a surface opposite to it.

2. Claims 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ookata (US 6,284,135)

Ookata teaches a submerged filter in a treatment tank with microporous membranes (column 5 lines 18-25: ultrafiltration or precision filtration membranes) attached to plurality of filter supports, raw fluid inlet, filtrate removal, bubbling air providing convection as seen in figure 6 and 7, capable of continuous process, sediment removal from the bottom, all as claimed – see figures and abstract. Membranes are made of resin material (hollow yarn, or hollow fiber membranes – figure 16, column 9 lines 45-60, which are well-known synthetic resin membranes). The membrane is attached in two directions – see figure 16. With respect to the tilt angle, since the membrane is hollow fiber as seen in figure 16, each of the cylindrical fiber surface would have a tilt angle to some surface in the device. Also, the 5° tilt is described as provided for making the bubbles move along the surface of the membrane (page 5 last paragraph), which would not be required for the hollow fiber; the bubbles would impinge the hollow fibers in any orientation.

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3. Claims 8-10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,890,431 to Eades, et al.

Eades teaches a submerged filter system in a treatment tank (figure 1,2, 4) with membrane (45"), raw fluid inlet, filtrate removal, drain pipe (44), bubbling air (column 3 lines 50-60). The filter 45" is not shown tilted to the vertical; however, figure 2 shows the lamella as tilted, and the filter 45" is a replacement for the lamella. It would be obvious to one of ordinary skill in the art at the time of invention to combine the teachings of figures 1,2 and 4 to provide an improved process combining floatation and membrane filtration. The tilt angle and direction can be optimized based on the membrane spacing to obtain the most convectional flow and/or floatation residence time. The membranes are in parallel, and therefore have opposing surfaces. Microfilter is attached at top and bottom in figure 4 – two directions. Microporous membranes in the wastewater treatment process is implied: "[I]n considering the disclosure of a reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom." In re Preda, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968); In re Lamberti, 545 F.2d 747, 750, 192 USPQ 278, 280 (CCPA 1976).

Response to Arguments

Applicant's arguments filed 6/19/06 have been fully considered but they are not persuasive.

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The argument that Ishida or Cote do not teach or mention microfiltration membrane is not persuasive: the ceramic membrane the reference teaches is in fact a microfiltration or ultrafiltration membrane because it is for the same or similar application as that of the applicant. Such membrane is implied (In re Preda). Applicant does not disclose or claim any specifics about the membrane other than 'microfilter' device, which at best can be considered as a filter that can remove micron-size particles. Microfiltration membranes are well known in the art of immersed membranes for wastewater treatment, like the membranes taught by Cote, et al (US 5,607,593), column 12 lines 35-47.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of


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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S. Menon whose telephone number is 571-272-1143. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Krishnan S Menon
Examiner
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